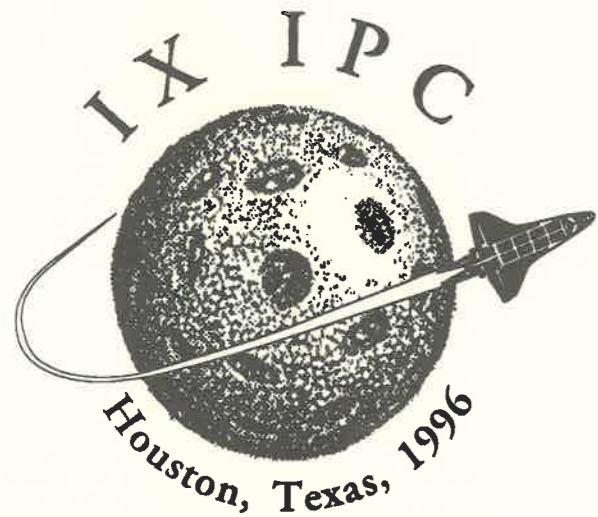


# PALYNOLOGOS

Volume 17, No. 1 - June, 1994

The NEWSLETTER of the INTERNATIONAL FEDERATION of PALYNOLOGICAL SOCIETIES



## The IX IPC Logo

The IX<sup>th</sup> International Palynological Congress will be held in Houston, Texas, in June 1996. The logo, shown above, incorporates themes appropriate for the meeting. Houston is well known as the home of the NASA Johnson Space Center, and an anticipated IPC event will be a visit to that facility. Therefore, space exploration, and specifically the Shuttle, is an aspect of the logo design.

The dominant form in the design is a pollen grain of *Salsola pestifer* (Russian thistle), a species of the family Chenopodiaceae. In fact, it could be the pollen of just about any species of the Chenopodiaceae, or of the Amaranthaceae as well. *Salsola pestifer* is common in North America (some would call it a pest of agriculture). The chenopods include about 1400 species of halophytes in North America and other parts of the world and are present in salt marshes of the Texas coast; the amaranths include about 850 species of world-wide distribution and local species are known as a Native American food source.

Pantoporate pollen morphology like that of the pollen grain shown on the logo has been around since Cretaceous time. The resemblance of such pollen to certain astronomical bodies is just another example of the fractal scale-independence of nature.

The logo was conceived by Doug Nichols and created via the magic of computer technology primarily by Pat Holroyd, an associate of Doug's at USGS.

Submitted by:

Douglas J. Nichols  
United States Geological Survey  
Denver, Colorado

## Announcements

### **Wanted: Field Trip Leaders And Symposia Organizers**

During June of 1996, the American Association of Stratigraphic Palynologists will host the IXth International Palynological Congress in Houston, Texas, U.S.A. Many exciting ideas have been suggested for symposia and field trips for the IXth IPC and some people are developing their plans at this time. However, we still need other people willing to organize symposia and lead field trips. If you are interested in taking a leading role in the next IPC, please contact one of us (Vaughn M. Bryant, Jr. and John H. Wrenn) as soon as possible concerning your plans. Be sure to provide the following information when you write, FAX or call:

- 1) Tentative title and subject matter of the proposed symposium or field trip.
- 2) Names of the organizers.
- 3) An estimated length of the event.
- 4) Estimated number of participants.

We look forward to seeing you at the IXth IPC.

**Dr. Vaughn M. Bryant, Jr.**  
Department of Anthropology  
Texas A. & M. University  
College Station, TX 77843 U.S.A.  
Phone: 409-845-5242  
FAX: 409-845-4070

**Dr. John H. Wrenn**  
Department of Geology and Geophysics  
Louisiana State University  
Baton Rouge, LA 70803 U.S.A.  
Phone: 504-388-4683  
E-Mail: glwrenn@lsuvm.sncc.lsu.edu  
FAX: 504-388-2302

### **Call To All The Pollen Analysts**

As part of his PhD thesis completed at Marseilles and Montpellier (France), Severine Fauquette has developed a means for quantifying the records of Pliocene climate in Western Europe and the whole Mediterranean region. Dr. Joel Guiot, Marseilles and Dr. Jean-Pierre Suc, Montpellier, the thesis supervisors, consider it to be an important means for estimating Pliocene climates, such as the 3.1-3.0 Ma warming reported by Dowsett et al. (Science, 258, p. 1133-1135, 1992).

Many well-dated, detailed pollen analyses have been conducted on the Pliocene units within the study area. Unfortunately, the Mediterranean region is devoid of living plants

representative of tropical-subtropical environments. As a consequence, we urgently need modern surface samples (10cc; from lakes, coastal marine sediments or mosses) from East China, Japan, northern Viet-Nam, eastern and western North America, the Red Sea, the Caspian Sea, and the Black Sea. In addition to sample material, we need to know the latitude, longitude and altitude of each sampled locality.

Our pollen analyses of these samples will be used to help us better understand the climatic response of significant taxa. Completed pollen analyses are also welcome. Please send samples (or pollen spectra) to:

Dr. Jean-Pierre SUC  
Laboratoire de Palynologie (case 061)  
Universite Montpellier II  
F-34095 Montpellier cedex 5 (France)

Tel. (33).67.14.32.69  
Fax. (33).67.04.20.32

If you have any difficulty in mailing samples, please contact J.-P. Suc. You may be able to use the dispatch-box of the French Embassy in your country. Any help will be highly appreciated. Thank you very much.

## Change Of Address

Jan Jansonius, one of the IFPS Councillors for the American Association of Stratigraphic Palynologists, has recently moved. His new address is:

Jan Jansonius  
c/o Institute of Sedimentary and Petroleum Geology  
3303 33 Street NW  
Calgary, Alta, Canada T2L 2A7  
Phone: +1 (403) 292-7179  
Fax: +1 (403) 292-5377

## Departed Colleagues

### Joseph Miller Wood (1921-1994)



After a long bout with cancer, Joseph Miller Wood, Professor Emeritus of Biological Sciences at the University of Missouri-Columbia, passed away on January 14, 1994.

Joe was born May 2, 1921, in Richmond, Indiana, to Clarence Leo Wood and Hilda Miller Wood. After his parents moved to

Chicago, he completed his elementary and secondary schooling there. During his senior year in high school, his excellence in science was recognized when he was awarded the Bausch & Lomb Science Medal.

At the onset of World War II, he enlisted in the U.S. Army Signal Corps, where he served for four years. Unable to afford a college education after Army service, he worked for four years in the machine shop of a steel mill in East Chicago, Indiana. In 1950 he enrolled at Indiana University in Bloomington where he obtained a bachelor's degree in botany in 1953.

It was during his undergraduate days at Indiana that I first met Joe, who was a student in several of my courses. His obvious dedication and love of learning impressed me. When I discovered his dual interests in botany and geology, I actively recruited him for my graduate program in paleobotany.

During the field seasons of 1953-54, he served as my able research assistant in a survey of the fossil plants in the coal regions of southern Indiana, sponsored by the Indiana Geological Survey. Working long hours in the strip mines on spoil banks and in coal adits in the heat and humidity of the summer months in the Ohio Valley is not the softest job in the world. Yet in spite of the difficult, and often primitive living conditions, Joe never complained.

The results of this extensive paleobotanical survey of 173 sites in 23 counties of southwestern Indiana was then published (Wood & Canright, 1954). This initial survey also served as the foundation for a later, more comprehensive report on the fossil plants of Indiana (Canright, 1959).

In 1954 Indiana University awarded Joe the Ogg Graduate Fellowship, which gave him the opportunity to spend an academic year at the University of Michigan in the laboratory of the renowned paleobotanist, Chester Arnold. One of Joe's research projects there was to elucidate the morphology of some compressed Sigillarian fructifications (Wood, 1957). The University of Michigan awarded Joe the Master of Science degree in Botany in 1956. Later that year he won a National Science Foundation Pre-Doctoral Fellowship to assist him in further graduate study at Indiana University.

However, the following summer a change of plans occurred when Joe married Betty Sutphin Bruner, a Bloomington widow with two young children. With this additional responsibility, Joe needed a larger income, and he was pleased to accept an appointment as Instructor of Botany at the University of Missouri in Columbia. This appointment proved to be mutually satisfying. Over a 28-year period Joe was promoted through the ranks, officially retiring in 1985 with the title of Professor Emeritus.

During his early years at Missouri, despite a heavy teaching load, Joe managed to complete his research and write his dissertation on the Pennsylvanian-age Stanley Cemetery Flora of Indiana (Wood, 1963). Indiana University awarded him the Ph.D. in 1960.

Joe's principal teaching assignment at the University of Missouri was the general Botany course, which he gradually built up to an enrollment of more than 500 students per semester over the 15 years he was in charge. At regular intervals he also taught courses in Paleobotany, Palynology and general Biology. His dedicated, innovative and inspirational teaching was recognized in numerous letters of commendation from the University of Missouri administration, the Standard Oil Teaching Award and the Gamma Sigma Delta Teaching Award of Merit.

Although teaching was obviously his first love, Joe maintained an active research program in both palynology and paleobotany, serving as the major professor for seven Ph.D.'s and two Master's degree recipients. Palynologists completing their graduate programs under his direction included: Kenneth L. Segroves (A.M., 1963 - "Palynology of the Callaway Formation"); Sujoy Gupta (Ph.D., 1965 - "Palynology of the Grassy Creek and Saverton Shales of Missouri"); and

Dwight D. Brown (Ph.D., 1969 - "Palynology of the Hannibal Formation -- Lower Mississippian -- of Northeast Missouri and Western Illinois").

Joe joined the American Association of Stratigraphic Palynologists (AASP) in 1968, shortly after its foundation. He was also an active member of the Botanical Society of America for 38 years. Other professional society affiliations included: AAAS, AIBS, Missouri Academy of Science, Sigma Xi Research Society (President, UN-C Chapter, 1976-77), Paleontological Society, Association of Missouri Geologists, The Paleontological Association, Commission Internationale de Microflore du Paleozoique (CIMP), and the International Organization of Paleobotanists.

After his retirement in 1985, Joe and Betty traveled. He frequently used these trips to collect both fossil and modern pollen and spores, which he subsequently processed in the laboratory that he maintained at the University of Missouri. His extensive reference collection of slides of modern palynomorphs was donated to the University of Missouri Herbarium. His large number of catalogued megafossil specimens have been given to the Smithsonian Institution in Washington, D.C. In his will Joe requested that his sizable palynology reprint collection and palynology library be donated to the AASP Foundation.

Joe was a straightforward, diligent, extremely dedicated teacher and a devoted family man. I feel confident that his family, friends and hundreds of former students will remember him with love and affection.

#### References

Canright, J. E., 1959. Fossil plants of Indiana. Ind. Dept. of Conservation, Geological Survey, Report of Progress No. 14. 45 pp. & 5 plates.

Wood, J. M. 1957. The morphological relationships of sigillarian fructifications from the Lower Pennsylvanian of Indiana. Amer. Midl. Nat. 58: 141-154.

Wood, J. M., 1963. The Stanley Cemetery flora (early Pennsylvanian) of Greene County, Indiana. Ind. Dept. of Conservation, Geological Survey, Bulletin No. 29. 73 pp. & 12 plates.

Wood, J.M. & J. E. Canright, 1954. The present status of paleobotany in Indiana, with special reference to the fossils of Pennsylvanian age. Proc. Ind. Acad. Sci. 63: 87-91.

#### Submitted by:

James R. Canright  
President IFPS  
Department of Botany  
Arizona State University  
Tempe, Arizona 85287-1601

### Mr. Donald K. Cameron, Jr. (1931-1994)

Mr. Donald K. Cameron, long time employee of Chevron Oil Company, died February 2, 1994 in Franklin, Tennessee, U. S. A. Don was 63 years old. (Editors note: An obituary will appear in the December issue of PALYNOS.)



## REPORTS

### Palynological News From Russia

The Russian Palynologic Commission's (RPC) VIIIth All-Russian Palynological Conference, entitled "Palynology and Detail Stratigraphy Problems" was held in Saratov, August 16-20, 1993. In attendance were palynologists from all regions of the ex-USSR (Moscow, St. Petersburg, Novosibirsk, Irkutsk, Alma-Ata, Kiev, Karaganda, Vitebsk, Krakov, etc.).

The conference covered the following topics:

- 1) Palynostratigraphy of the Phanerozoic in Russia and neighboring states
- 2) Sporodermis morphology of modern and fossil spores and pollen
- 3) Mathematical methods in palynology.

In addition to the plenary sessions, the conference program included the following sections:

- 1) Palynology of the Pre-Cambrian and Paleozoic
- 2) Palynology of the Mesozoic
- 3) Palynology and Paleogeology of the Paleogene-Neogene
- 4) Palynology and data processing of the Anthropogene
- 5) Morphology of miospore sporodermis

This conference demonstrated that significant progress has been made in traditional methods of research on:

- 1) the facies relationship between spore-pollen complexes and paleofloristics;
- 2) paleoclimatic algae palynocomplexes, their composition and their division into districts;
- 3) the value of distributed pollen and spores in development allargology;
- 4) using mathematical methods for reconstructing paleoclimate and paleolandscape, and for estimating the degree of representative palynodata.

Russian palynologists take an active part in working out the palynological subdivision of regional stratigraphic diagrams. We have abundant material that needs monographic documentation and publication in atlas format. Special attention was directed to the necessary Palynodata Bank Foundation and the wider use of mathematical methods.

At the final session, the delegates elected new members and associate members to the RPC. Dr. Lidiya V. Rovnina was elected to be the Chairman of the Russian Palynological Commission.

The VIIIth All-Russian Palynological Conference will be held in Moscow in 1996. The meeting theme will be "Palynology in Paleofloristics, Paleoecology and Paleogeography."

#### Submitted by:

Dr. Rovnina L. V.  
Dr. Oschurkova M.V.  
Dr. Khlonova A.F.

## Meliso-Palynology Meeting Report

On 30th September and 1st October 1993, the first meeting of the "Meliso-Palynology" group of APLE was held in Marchamalo (Guadalajara, Spain). It was supported by the Ministry of Agriculture and the "Junta de Castilla y la Mancha."

The main objective of this meeting was to reach an agreement on the criterion to be considered when determining the origin of honeys and to establish a common method of analyzing the pollen content in honey. The social activities included a honey tasting party. It was agreed that Meliso-Palynology Group should meet once every two years.

The 10th APLE Palynology Symposium will be held in Valencia, Spain during September of 1994. Oral and poster presentations on Pollen Biology, Actinopalynology, Paleopalynology, Melitopalynology and Aeropalynology will be presented. For more information, contact:

Isabel Mateu Andres  
Secretaria X Simposio de Palinologia  
C/ Doctor Moliner  
50, E-46100  
Burjasot, Valencia, Spain.)  
Fax: (96) 386 43 72  
Phone: (96) 386 43 74

## Meet The Editor Of Palynos

### John H. Wrenn



John H. Wrenn has been an active member of the American Association of Stratigraphic Palynologists for the last 15 years. He has served as the 25th President of the AASP, chairman or member of numerous committees, as well as the AASP newsletter editor. John has organized a variety of meetings, short courses and conferences, including the 1993 AASP annual meeting held in Baton Rouge, LA. Along with Jean-Pierre Suc, John co-organized the "Palynology, Climate and Sequence Stratigraphy of the Pliocene Symposium" held at the 26th AASP meeting. John and Vaughn M. Bryant, Jr. (Department of Anthropology, Texas A. and M. University) are co-Chairmen of the Organizing Committee of the IXth International Palynological Congress, which will be held in Houston, Texas, in 1996.

After 13 years as a research scientist and exploration geologist with Amoco Production Company, John moved to Louisiana State University, Baton Rouge in January, 1993, to set up the Center for Excellence in Palynology (CENEX). He is currently the Director of CENEX and an Associate Professor in the Department of Geology and Geophysics.

John has done field work in Antarctica, the Caribbean, the Far East and along the U. S. Gulf Coast. Current research interests include the biostratigraphy, evolution, paleoenvironmental significance and morphology of dinoflagellate cysts.



## Pollen Grains Of Canadian Honey Plants

By  
Clifford W. Crompton  
& Walter A. Wojtas.

1993. Research Branch,  
Agriculture Canada  
Publication 1892/E 1993,  
Ottawa, Canada  
(available from Canada  
Communication Group  
Publishing, Ottawa,  
Canada KIA OS9).  
236 pages, 376 SEM  
photographs and 567  
B&W light micrographs:  
\$39.95 CAN (in Canada),  
\$51.95 US (by mail).

Sixteen years ago the senior author published another pollen atlas of Canadian flora (*An Atlas of Airborne Pollen Grains and Common Fungus Spores of Canada*, by I. J. Bassett, C. W. Crompton, and J. A. Parmelee. 1978). The present volume is a bit more ambitious than the earlier work because it contains photographs, a key, and pollen descriptions covering 188 plant taxa from 52 families. The earlier Bassett *et al.* (1978) atlas focuses mainly on allergenic pollen and spore types in Canada while the present book focuses exclusively on taxa known to be important nectar and pollen sources for Canadian bees.

For palynologists working with unknown pollen types found on the bodies of insects, or in samples from archeological sites, honey samples, forensic specimens, and Quaternary sediments, almost any pollen key or atlas is valuable. Although most palynologists have access to their own modern pollen reference collection, these collections never cover all the potential taxa one might encounter. This is why pollen atlases are of immense value. Nevertheless, most pollen keys and atlases have flaws, and this atlas is no exception.

Some of the SEM plates (e.g., page 136, 156, 164, etc.) in this book are quite good, and show morphological details clearly; however, other SEM plates (e.g., pages 147, 148, 159, 165, etc.) are too light to show clear details or are slightly blurred. My other complaint concerning the SEM plates is that the individual pictures of pollen grains are too small: one needs to use a magnifying glass to see some of the finer details clearly. Most light micrographs also suffer from low contrast and do not clearly show the details of surface ornamentation or pollen wall morphology. On the plus side, all the SEM and light micrographs have convenient bar scales making it easy to determine a pollen grain's size.

There are a few typos (e.g., "Pollen Spores" instead of "Pollen et Spores"; "Faegri and Iverson" instead of "Faegri and Iversen") and citation errors (e.g., "Pollen spectrum of Quebec honeys" by Feller-Demalsy, instead of the actual title, "Le Spectre Pollinique des Miels du Quebec").

In addition to a pollen key, pollen species descriptions and photographic documentation, the book contains a small amount of text. Three pages of introductory text explain why the authors wrote the book and provide a very brief overview of palynology--mostly in terms of how it applies to the study of bees and honey. There is also a two-page discussion on how to analyze honey for its pollen content. The authors discuss three methods: 1) combining equal parts of honey and hot water and then making wet mounts of the solution; 2) heating raw honey until, as they say, it is "molten," then centrifuging the hot honey for two minutes at 2500 rpm before pipetting drops from the surface onto a slide for analysis; and 3) mixing 10 g of raw honey with 25 cc of water, centrifuging it, then using acetolysis.

Our experience indicates that none of these techniques will provide an accurate representation of the pollen contents of honey samples. The first method comes the closest, if a large number of pollen grains are counted (ca. 500+). We find that not all the pollen in all honey samples will rise to the top using the second method. Finally, our experiments, and those reported by Lutier & Vaissiere (Rev. of Paleobotany and Palynology 78: 129-144), reveal that the third extraction method (noted above) will not capture all of the pollen found in a honey sample.

Would I recommend the purchase of this book? The answer is yes! As mentioned earlier, atlases and pollen keys provide the palynologist with additional information beyond his/her own pollen reference collection. I, for one, consider pollen atlases critical for my own work.

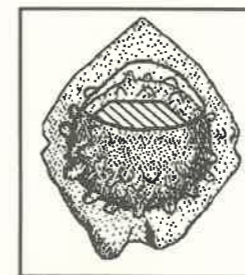
The cost of the Canadian atlas is inexpensive by comparison to the cost of some of the other pollen atlases available for sale. However, the other atlas available on Canadian pollen and spore flora (Bassett *et al.* 1978), also available from the Canada Communication Group Publishing, is an even better buy. It is a 321 page, hardback book that sells for only \$10.05 US!

Reviewed by:  
Vaughn M. Bryant, Jr.  
Department of Anthropology  
Texas A. & M. University  
College Station, Texas, U.S.A.

## A Classification Of Living And Fossil Dinoflagellates

By  
R. A. Fensome, F. J. R. Taylor,  
G. Norris, W. A. S. Sarjeant,  
D. I. Wharton & G. L. Williams.

1993. Micropaleontology, special  
Publication Number 7, American  
Museum of Natural History, New  
York, New York, U. S. A.,  
351 pages, 191 text figures, 60  
tables. ISSN 0160-2071. \$90.00



At last. Integrated order has been brought to the taxonomy of living and fossil dinoflagellates. The traditionally separate studies of living dinoflagellates by neontologists and fossil dinoflagellate cysts (dinocysts) by palynologists have been brought closer together by this landmark publication. This book may well prove to be as indispensable to palynologists as are the various incarnations of Lentin and Williams' "Fossil Dinoflagellates: Index to Genera and Species."

The abundant information in the Introductory, Systematic, and Summary and Conclusions sections of the book are supplemented by four appendices. The latter include a glossary of terms applied to dinoflagellates, a review of previous classifications, an index of generic assignments and an index to species mentioned in the book.

Features of the motile cell, reproduction, life cycle, tabulation, etc. are covered in the Introductory Section, providing a background for understanding the taxonomic assignments in the Systematic Section. The relative importance of various dinoflagellate characteristics for classification are briefly reviewed as well. Naturally, tabulation receives considerable attention. This section may prove to be a bit bewildering to some workers new to dinoflagellate studies. They may wonder if all the tabulation schemes are useful or necessary and which one(s) to use. After having read this book they will be conversant in at least the Kofoidian and Taylor-Evitt tabulation system, because these two systems are stressed, and at times mixed, throughout the book.

The Systematic Section presents a new scheme for integrating all known living and fossil dinoflagellate taxonomic entities down to the generic level. This is a major advance in dinoflagellate studies, whether one agrees with all the details or not. A synonymy list, diagnosis, descriptive and systematic remarks, comparison with other groups, subdivision, and general occurrence are provided for each taxon in this section. (Appendix C provides a listing of every generic assignment to higher taxonomic groups, thus providing a direct tie to the Lentin and Williams indices noted above. Very useful to the palynologist.) Informative drawings illustrate most of the taxonomic groups.

The Summary and Conclusions Section is mis-named and misplaced. The Summary is a distillation and restating of the data presented in the Diagnosis, Comparison and Subdivision entries of the Systematic Section. The Conclusions should have been incorporated into the Introductory Section, because there is much here that is new to the book and little that is drawn directly from the Systematic Section.

Many new names (some of which will sorely test your spelling and speaking skills) and new descriptive terms are presented in the text. One wonders whether the current trend towards overly specialized terminology (e.g., fundital and climactal plates) promotes or inhibits communication with readers, other than the cognoscente. There is always the danger that the more specialized our terminology becomes, the smaller will be the audience whom we can communicate. (For example, who can understand anything a lawyer says, except for how much one owes them?)

These minor complaints aside, this is an excellent book destined to be a classic. It's plasticized, soft cover does not tear easily (I tried) and the sewn and glued binding will provide years of hard service. Editor-in-Chief John Van Couvering and Micropaleontology Press are to be congratulated on publishing another excellent volume for the micropaleontologic community.

Reviewed by:  
John H. Wrenn  
Center For Excellence in Palynology  
Louisiana State University  
Baton Rouge, Louisiana

## Future Meetings



August 10-15, 1994  
5th International Conference on Aerobiology, Hotel  
Ashok, Kumara Krupa High Grounds, Bangalore,  
India, (Conference Secretariat: 401, 41st Cross, 5th  
Block Jayanagar, Bangalore-560 041, India.)  
Telex: 0845-8910 CSC Jin Code No. 191  
Fax: (91)-080-6635103  
Phone: (91)-080-6635103

September 5-9, 1994  
25th International Union of Biological Sciences  
(IUBS) General Assembly and the International Forum  
co-sponsored by UNESCO, the French Government  
and the International Council of Scientific Unions  
(ICSU) on: Biodiversity: Science and Development  
Towards a New Partnership. Includes symposium:  
"The Lessons Learned from the IUBS Decade of the  
Tropics; and workshop: Biological Education,  
Biological Nomenclature and Biological Taxonomy."  
(Contact: Dr. Talal Younes, Executive Director, IUBS,  
51 Boulevard de Montmorency, 75016 Paris, France.)  
Phone: 33 (1) 45 25 00 09  
Fax: 33 (1) 45 25 20 29

September 12-14, 1994

Congres Francais de Stratigraphie (1st) (CF'94), Toulouse, France. (J Rey ou B Peybernes, Laboratoire de Geologie sedimentaire et paleontologie, Universite Paul-Sabatier, 39, allees Jules-Guesde, 31062 Toulouse Cedex, France.) Phone: (33) 61 53 02 35 Telefax: (33) 62 26 71 40

September 19-23, 1994

4th European Palaeobotanical-Palynological Congress, Heerlen, The Netherlands. (Contact: H.W.J. van Amerom, Chairman, Geol. Surv. Rhine-Westphalia, P.O. Box 1080, D-4150 Krefeld 1 Germany) Phone: 49-2151-897255; Fax: 49-2151-897505; or Dr. G. F. W. Herengreen, General Secretary, c/o Geological Survey, P. O. Box 157, 2000 AD, Haarlem.) Phone: 31-23-300359 Fax: 31-23-401754

September 1994

10th APLE Palynology Symposium (4th week in September) in Valencia, Spain. Subjects include: Pollen Biology, Actinopalynology, Paleopalynology, Melitopalynology and Aeropalynology. (Isabel Mateu Andres, Secretaria X Simposio de Palinologia, C/ Doctor Moliner, 50, E-46100, Burjasot, Valencia, Spain.) Fax: (96) 386 43 72 Phone: (96) 386 43 74

October 25-26, 1994

4th International Congress on Jurassic Stratigraphy, Mendoza-Neuquen, Argentina. (Dr. A. C. Riccardi, CC 886, 1900 La Plata, Argentina.) Phone: 54-21-39125 Telefax: 54-21-530189

January 3-7, 1995

4th International Conference on the Evolution of the East Asian Environment. (Secretariat, Fourth International Conference on the Evolution of the East Asian Environment, c/o Center of Asian Studies, The University of Hong Kong, Pokfulam Road, Hong Kong.) Fax: 852-559-5884; e-mail CASLIB@HKUCC.BITNET

February 6-11, 1995

South Asia Geological Congress (2nd) (GEOSAS-II-95), Colombo, Sri Lanka. (Congress Secretariat: NARA, Crow Island Mattakuliya, Colombo 15, Sri Lanka.) Phone: 941 522008 Telefax: 941 522932; 941 522881

March 5-8, 1995

American Association of Petroleum Geologists Annual Meeting, Houston, Texas, USA. (AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101, USA.) Phone: (918) 584-2555

June 12-16, 1995

The Ordovician System, 7th International Symposium), Las Vegas, Nevada, USA. (Dr. Margaret N. Rees, Department of Geoscience, University of Nevada at Las Vegas, Las Vegas, NV 89154-4010, USA.) Phone: (702) 739-3262 Telefax: (702) 597-4064

August 31, 1995

INQUA, Berlin, Germany. (E. Derbyshire, Royal Holloway and Bedford New College, London University, Egham, Surrey TW20 0EX, UK.) Telefax: +44(0)273-748919

# AASP 1995 Ottawa Canada a CAPital experience

October 10-14, 1995

28th Annual Meeting of the American Association of Stratigraphic Palynologists at Ottawa, Ontario, Canada. Symposia, Technical Sessions, Posters, Field Trip. (Ms. Susan A. Jarzen, Canadian Museum of Nature, P. O. Box 3443, Station "D", Ottawa, Ontario, Canada K1P 6P4, Fax: (613) 954-4724. Plans are underway for a full-day Special Session on Quaternary Palynology. For details contact Dr. Pierre Richard, Laboratoire Jacques-Rousseau, Laboratoire de paleobiogeographie et de palynologie, Department de geographie, Universite de Montreal, C.P. 6128, succursale A, Montreal, Quebec, Canada H3C 3J7.) Phone: (514) 343-8023 Fax: (514) 34E-8008 E-mail: richard@ere.umontreal.ca

June 4-14, 1996


30th International Geological Congress, Beijing, China. More than 200 symposia and 140 field trips are planned. (Secretariat Bureau, 30th International Geological Congress, P. O. Box 823, Beijing 100037, P. R. China) Phone: 86-1-8327772 Telex: 222721 CAGS CN FAX: 86-1-8328928

June 9-12, 1996

North American Paleontological Convention (6th), Washington, D.C., USA. (NAPC-VI, c/o Department of Paleobiology, Mail Stop 121, National Museum of Natural History, Washington, DC, 20560, USA.)

June 22-29, 1996

IXth International Palynological Congress, Houston, Texas, USA (Contact: Dr. Vaughn W. Bryant, Jr., Department of Anthropology, Texas A. & M. University, College Station, Texas 77843, U. S. A.) Phone: 409-845-5242 FAX: 409-845-4070



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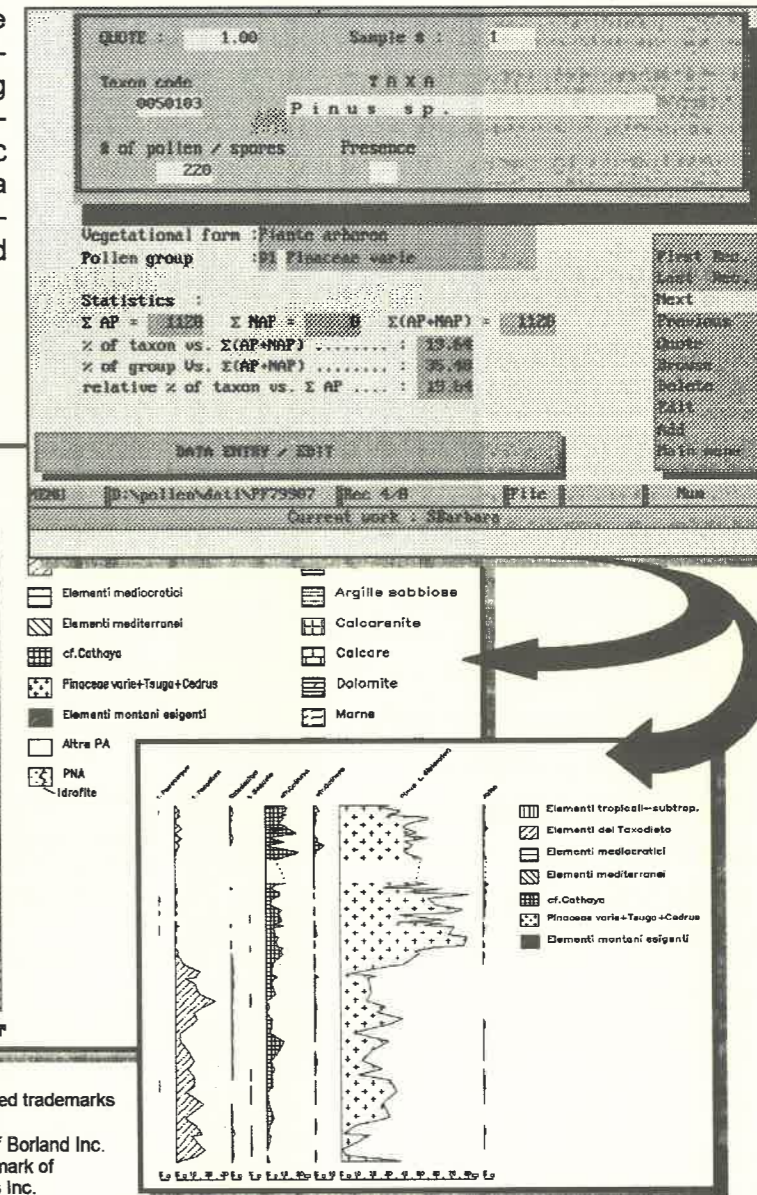
# Pollen®

From ECOSYSTEMS a new powerful, easy-to-use package for pollen data management with diagrams auto drawing facility.

- Includes Design-CAD 2D®, a Computer Aided Design (CAD) package, that you can use to further customize the diagrams automatically created by Pollen.

**Pollen®** can produce statistical reports, concentrations computing by "Cour" and "Marker-grain" methods, graphic representation of data (synthetic, detailed diagrams both in linear and semi-logarithmic scale).

- Data management uses dBase IV® like interface.



The screenshot shows two windows from the Pollen software. The top window is a data entry form with fields for 'QUITE' (1.00), 'Sample s' (1), 'Taxon code' (0050103), 'TAXA' (Pinus sp.), and 's of pollen / spores' (220). It also displays 'Vegetational form' (Plante arboron) and 'Pollen group' (P1 Pinaceae varie). A 'Statistics' section shows  $\Sigma AP = 1120$ ,  $\Sigma NAP = 8$ , and  $\Sigma (AP+NAP) = 1128$ . The bottom window shows a diagram drawing interface with a legend for pollen elements and a drawing area with a vertical axis and pollen distribution curves.

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**dBase IV** is a registered trademark of Borland Inc.  
**DesignCAD 2D** is a registered trademark of American Small Business Computers Inc.

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**Editors:**  
**M.H.Kurmann & J.A.Doyle**

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